DC-Net Products and Services Guide

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About DC-Net

Established by the District of Columbia government and run by the Office of the Chief Technology Officer (OCTO), DC-Net operates a fiber optic based metropolitan area network that provides fully redundant, secure, high-speed transport of data, voice, video, and wireless services for government purposes throughout the District of Columbia. Designed for and dedicated to government users, DC-Net features:

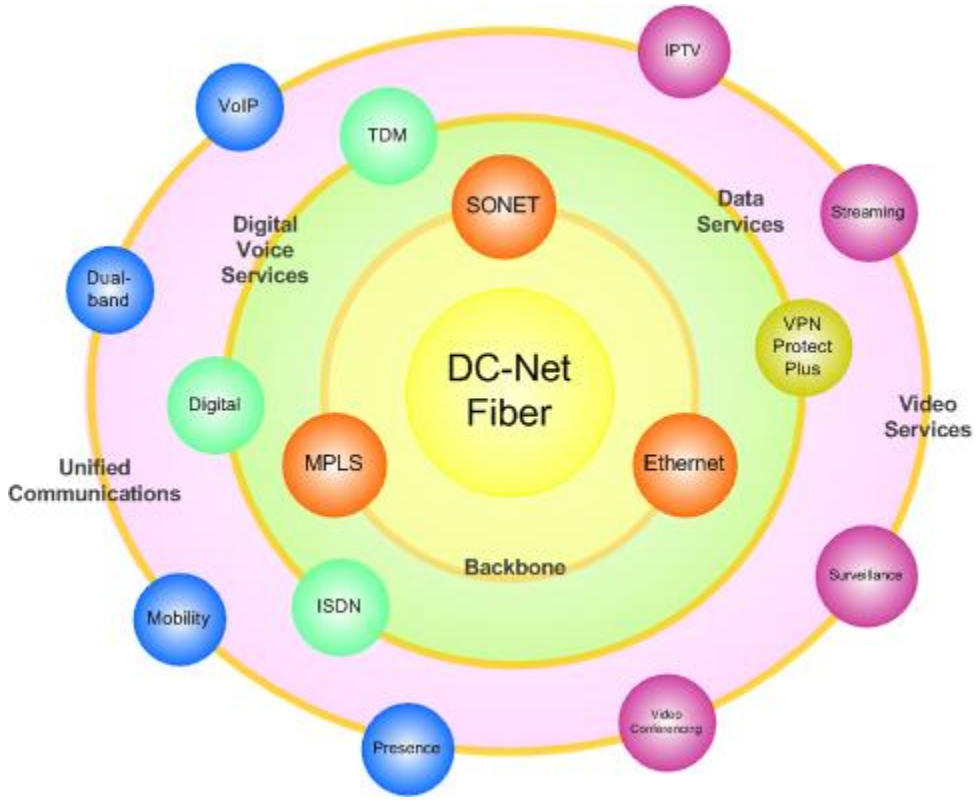
- One-stop shopping. Unrivaled ability to offer a full range of customized telecommunications services to meet government needs in the District.
- A full offering of up-to-date telecommunications products and services at a cost savings over commercial service providers.
- High availability and reliability through redundant fiber optic connections. Full failover in the event of a fiber cut or equipment failure.
- End-to-end security on all links, fully managed by OCTO.
- Public safety-grade communications allows emergency first responders to communicate across National Capitol Region.
- Responsive service and round-the-clock technical support.
- Fully staffed, knowledgeable customer care personnel able to walk you through the ordering process.

DC-Net provides affordable, advanced solutions to approximately 310 sites across the District, including: public safety facilities and radio towers; administrative buildings; public schools and libraries; recreation and community centers; District-owned hospitals and clinics; and semi-governmental entities such as UDC. DC-Net has deployed over 330 miles of fiber throughout the District. It serves over 33,000 users.

Through its broadband network services, DC-Net helps District residents overcome the “digital divide” at educational sites with its support for streaming video and distance learning. DC-Net facilitates high-bandwidth data connectivity supporting “bandwidth hungry” applications such as telemedicine, web-casting, and video conferencing, in addition to providing reliable transport for public safety communications.

As shown in Figure 1, DC-Net's fiber optic network is the resilient high-speed core for all products and services DC-Net provides, from digital voice to VPN data, Voice over Internet Protocol (VoIP), and video services which use IP-based networking.

Figure 1: DC-Net Services



About this Guide

The *DC-Net Products and Services Guide* is for Agency Telecommunications Coordinators (ATCs) and others responsible for ordering from DC-Net. It provides up-to-date descriptions of available products and services and gives guidance on the ordering process. This document is available in PDF and will be available to District Government employees online at the DC-Net intranet site: http://dcnet.in.dc.gov.

Data Networking

DC-Net offers Layer 1 dark fiber and wavelength services, Layer 2 Ethernet over MPLS services, and Layer 3 Managed VPN data services.

Layer 1 Services

Dark Fiber

DC-Net offers distance band dark fiber services. Dark fiber refers to strands of unlit fiber that can be constructed as point-to-point or a loop based on customer requirements. Dark fiber can be procured on a monthly lease or as a 5 or 10-year IRU (Indefeasible Right-to-Use) basis. DC-Net uses zero water peak optical fiber for its outside plant suitable for most optical technologies commercially available. Typical attenuation specifications are 0.25 dB/km at 1330 nm and 0.35 dB/km at 1550 nm. Pricing is based on fiber length, configuration and any other needs specific to customer needs.

Wavelength

DC-Net offers shared and dedicated 1 Gbps, 2.5 Gbps, and 10 Gbps wavelengths with point-to-point or point-to-multipoint configuration. Wavelengths are provisioned over a ring between desired locations as protected or unprotected. Peering can be done using Ethernet, FC/FICON, SONET or direct wave (OTN) interfaces.

Key features include:

- Physical path redundancy
- Dedicated 24 by 7 monitoring
- 99.999% availability
- Direct connectivity to District government data centers for District government services and resources
- Direct connectivity to core exchanges

- Available public and private peering points for interconnection and offsite data storage/recovery

Layer 2 Ethernet over MPLS

DC-Net Layer 2 Ethernet over MPLS service offers point-to-point and point-to-multipoint transport over 100 MB, 1 GB, and 10 GB circuits. Layer 2 services are offered over the MPLS platform built over a protected DWDM ring.

Key features include:

- Physical path redundancy
- Dedicated 24 by 7 monitoring
- 99.999% availability
- Direct connectivity to District government data centers for District government services and resources
- Direct connectivity to core exchanges
- Available public and private peering points for interconnection and offsite data storage/recovery
- Private connection to other District government and community anchors on network
- Edu-Net access for educational institutions - ability to peer with Internet(2), Mid-Atlantic Exchange (MAX GigaPOP), National Public LightPath, National LambdaRail

Layer 3 MPLS VPN Managed Circuits

DC-Net MPLS VPN-based data networking services provide managed, secure communications at a range of access speeds from 2 Mbps up to 1 Gbps and costs to fit your agency's budget. This service includes Internet access, 24 x 7 x 365 network monitoring and support, and a quality of service (QoS) service level agreement (SLA).

With the VPN (Virtual Private Network) managed service, your traffic is secured and separated from other customers' traffic on the network through the use of VPN tunneling.

VPN services enable data quality monitoring and prioritization—ensuring that real-time critical applications, such as voice and video, are queued first. It is also less expensive

than traditional leased lines or remote access servers. The DC-Net VPN circuits offer logical connections to both OCTO data centers for diverse connections to Internet Service Providers. Agency traffic flows over VPN connections between customer remote sites on Access Rings, the main office site, and the data center.

Features and Benefits

- Multiple access and port speeds – VPN services offer link speeds of 2 Mbps, 4 Mbps, 10 Mbps, 20 Mbps, 50 Mbps, 100 Mbps, and 1 Gbps.
- Physical path redundancy; built in disaster recovery
- 24x7 network monitoring and customer support
- Prioritization of real-time sensitive data; guaranteed quality of service and packet delivery suitable for all traffic (including VoIP)
- Demonstrated 99.999% network uptime; network performance and availability backed by SLA
- Internet connectivity
- Secure government-only network
- Direct connectivity to District government data centers for District government services and resources
- Direct connectivity to carrier hotels, available public and private peering points for interconnection and offsite data storage/recovery
- Private connection to other District government and community anchors on network
- Metro Ethernet backbone with core ring speed of 10 Gbps, OC-48 SONET backbone with sub-50 ms failover and architectural design that allows for easy site expansion.
- Prices lower than commercial service providers
- Service network access:
    - Edu-Net access for educational institutions - ability to peer with Internet(2), Mid-Atlantic Exchange (MAX GigaPOP), National Public LightPath, National LambdaRail
    - HIPAA-Net access for health customers
    - Public Safety-Net access for public safety entities
    - Fed-Net access for federal government agencies

Technical Overview

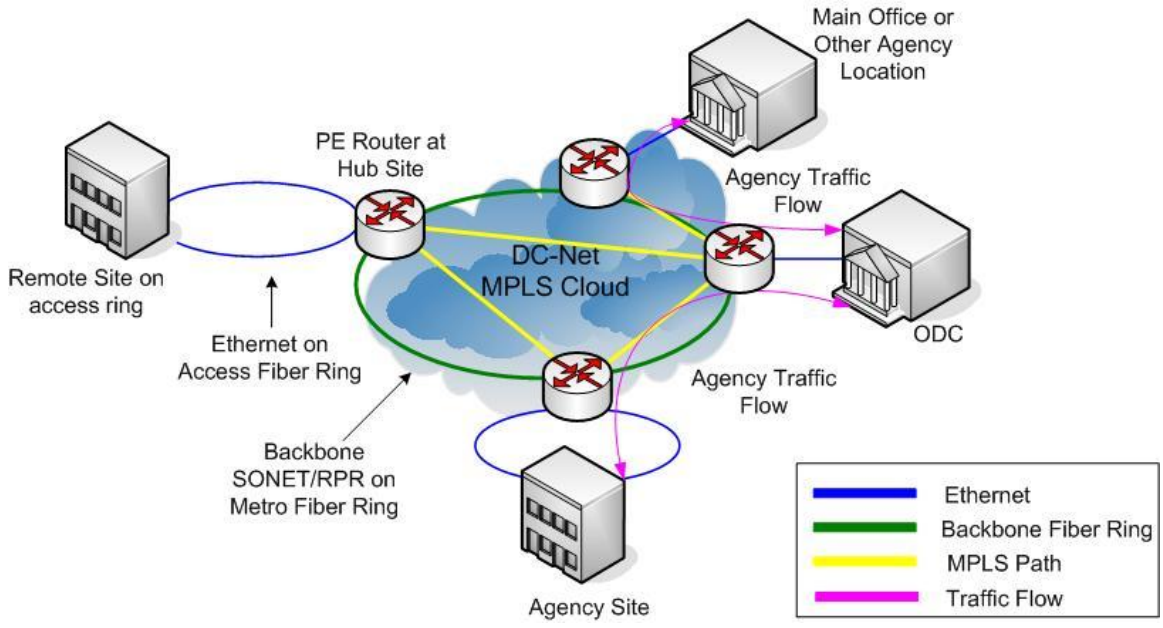
DC-Net VPN services provide secure, reliable transport of critical applications across a high-speed IP backbone infrastructure. The network uses industry leading switching and routing protocols, primarily the Multiprotocol Label Switching (MPLS) protocol. MPLS adds performance and resilience; including the ability to assign performance guarantees for each VPN tunnel.

DC-Net's backbone metro fiber rings run the Synchronous Optical Networking Technology (SONET) protocol supporting aggregate speeds of 2.5 Gbps. The protocol runs the Resilient Packet Ring (RPR) technology which enables load-sharing and path-protection between redundant fiber routes. Automatic failover in case of a fiber break or electronic failure happens within 50 ms without affecting any customer traffic.

At remote sites, Virtual Local Area Networks (VLANs) are used to identify sets of devices (computers, phones, video conferencing) as having access to a particular communications channel and a particular type of access.

Figure 2 shows how agency traffic flows over VPN connections between customer remote sites on Access Rings, the main office site, and the OCTO data center. Remote sites have fully redundant fiber from the site to the backbone carrying Ethernet traffic. At the DC-Net fiber optic Metro Ring hub sites, this communication channel is connected to a VPN tunnel to traverse the SONET backbone to the data centers and/or another location, such as a main office. Metro Rings are fully fiber optic and have full physical path redundancy.

Figure 2: VPN Service



Voice

Whether you are equipping a new call center, upgrading voice services at an existing site, or moving offices to a new building, DC-Net's voice services and products can meet your agency's needs and budget.

Voice Services

DC-Net provides VoIP (with Cisco or Avaya phone sets), Digital, ISDN, and Analog voice services.

Table 1: Voice Service Feature Matrix

Feature	VoIP 	Digital 	ISDN BRI 	Analog
Technology	Digital using Voice over Internet Protocol. Allows telephone calls to be made over the Internet or other IP-based networks.	Avaya proprietary digital protocol for use with certain model phones. Signaling is rendered in digital stream.	Legacy digital. ISDN BRI is a circuit-switched system that integrates speech and data on the same lines.	Legacy telephone. Signaling is rendered as a continuous wave.
Benefits	In new deployments, reduces number of jacks; future support for unified communications.	Troubleshooting done at switch; no need to dispatch technician. Eliminates need for NT1 rack. Power loss to site does not impact phone.	First level digital in conversion from Verizon Centrex or comparable service.	Low cost for fax, TTY, and other low or specific use lines.
Typical Deployment	Any new or existing site that meets the criteria for VoIP. Contact DC-Net for site survey.	Sites with Avaya infrastructure. Upgrade from ISDN. Large sites.	Conversion from Verizon services.	Fax and modem, limited range voice.
Phone Sets	Cisco 7911G, 7925G, 7945G, 7965G, 7937G, 7985G Avaya 9620, 9640, 9640G, 9650	Avaya 2420	Contact DC-Net for availability.	Contact DC-Net for availability.
LED Display	Yes	Yes	Limited	No
Call Appearances	Avaya: 24 in software Cisco: 1 or 3	24 in software	Limited, paper label	No
Call Logging	Yes	Yes	No	No

Switch Mode	Yes. Two Ethernet ports on phone. Connect to PC and wall port. (Cisco and Avaya).	No	No	No
Call Forwarding	Yes	Yes	Yes	Yes
Conferencing	Yes	Yes	Yes	Yes
Speed Dialing	No	Yes	No	No
Unified Messaging	Yes	No	No	No
Voicemail	Yes	Yes	Yes	Yes
Caller ID	Yes	Yes	Yes	Yes
911	Yes	Yes	Yes	Yes

All services are available with or without voicemail on the first line and additional lines.

For technical support and customer care information on all services, see Getting Help.

VoIP Managed Service

DC-Net provides Voice over IP (VoIP) managed services based on industry-leading Cisco Systems and Avaya platforms. A key part of a unified communications solution, VoIP enables users to access unified communications applications including unified messaging and soft client video conferencing. DC-Net uses Multiprotocol Label Switching (MPLS) to route VoIP calls across its network.

When selecting a VoIP service, DC-Net will deploy a Cisco and Avaya solution based on customer needs and infrastructure. Key considerations include:

- Is it a new site? Because VoIP deployment requires less wiring, it is often recommended on new sites.
- On existing sites, what is the voice and/or data infrastructure at that site? VoIP may be integrated with existing infrastructure.
- Cisco and Avaya phones both offer similar features, including:
  - Support for unified communications
  - Built-in Ethernet switch on the phone, providing access to the PC so that one Ethernet port can support two devices (the phone and PC) at the desk top.
  - Call logging

- LED display (some phones have a touch screen)
- Standard and color screens.

For more information about:

- Phone sets and features, see Avaya VoIP Phones and Cisco Unified IP Phones.
- Cisco video phones, see Video.
- VoIP offerings, and help with selecting the right VoIP solution for your agency, contact a DC-Net Customer Service Representative at 202-715-3801.

Digital

The DC-Net Digital Line service provides all the features of current Avaya digital telephone technology. Take advantage of softkeys, call appearances, and advanced features. DC-Net offers the following Avaya-based digital services:

- Digital Elite – Digital telephone service and voicemail.
- Digital Elite Plus – Digital telephone service, voicemail, and EC500.

For information about digital phones, see Avaya Digital Phones – 2420.

ISDN

DC-Net provides two ISDN BRI (Basic Rate Interface) services for access across the DC-Net network and to the Public Switched Telephone Network (PSTN):

- Multi-Point (Multi 2B+D) – Uses two 64 Kbps local digital access bearer (B) channels for circuit switched digitized voice and data communication to the PSTN and one 16 Kbps (D) channel for signaling and call control. With Multi-Point ISDN, you can have two separate conversations at the same time over two different telephone instruments, or speak with a person over one digital channel while transmitting information over the other.
- Single Point (1B+D) – Uses one 64 Kbps B channel for voice and data and one D channel for signaling and call control.

Analog

DC-Net offers Analog voice services with and without voicemail. Typical uses for analog lines include:

- Fax machines
- TTY
- Conference room phones
- Modem lines
- Entry phones or other call boxes with localized connection
- Campus security phones
- Elevator phones

Non-DID

When you select a voice service, you may want to specify certain lines as non-direct inward dialing (non-DID). Non-DID lines always route outside callers through an operator or attendant, in contrast to direct inward dialing (DID) lines, which let outside callers reach an internal extension without having to pass through an intermediary.

The Non-DID Lines service is useful when you want all callers routed through a centralized number, such as at a call center. This service can also save you money on phone lines over which you do not expect to receive incoming calls, such as fax lines, elevator phones, and security call boxes.

Voice Managed Services

In addition to the VoIP Managed Service, DC-Net provides a range of voice managed services that meet the needs of call centers and agency offices. E-fax, web and audio conferencing, and unified messaging give you cost-saving and efficient ways of doing business.

Call Center Solutions

For call centers, DC-Net's Automated Call Distribution, Call Management System, and Voice Call Recording products give you full-scale, efficient system for managing calls.

DC-Net has designed and implemented a number of critical state-of-the-art ACD/CMS systems in the District, including at the Department of Motor Vehicles, Children and Family Services, Office of the Attorney General, and the 911 Call Center.

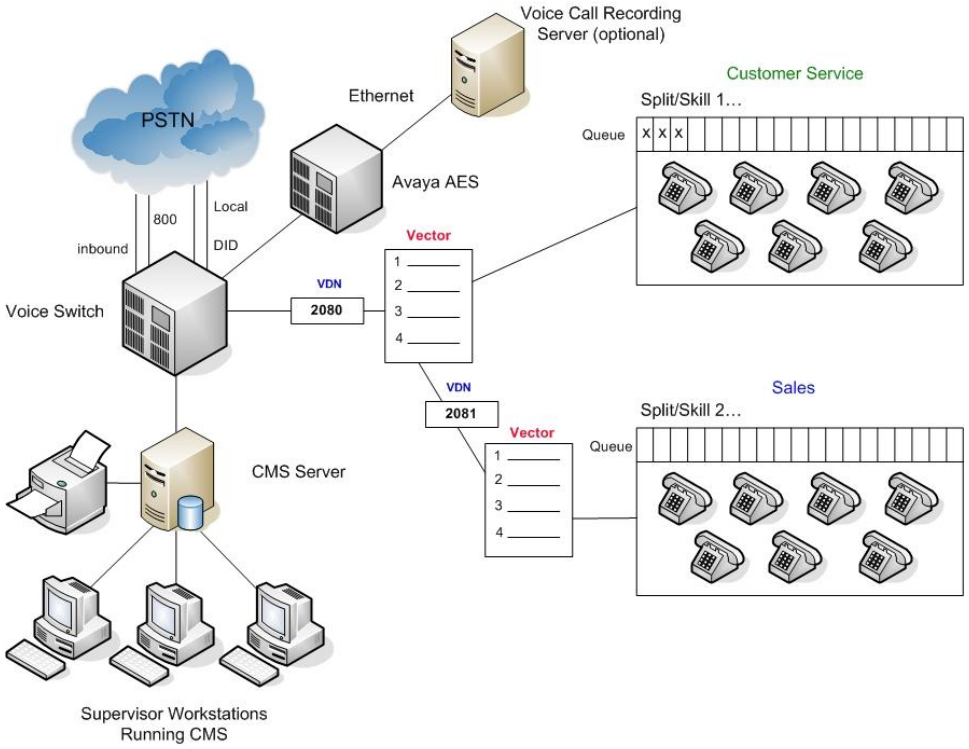
Automated Call Distribution and Call Management System

DC-Net's Automatic Call Distribution and Call Management System (ACD/CMS) products can significantly improve how your call center manages incoming calls. Together these products help you increase call efficiency and provide higher quality service. Key benefits of ACD/CMS include:

- **Increase your call volume without adding staff.** Analyze call information—from average wait times to resolution rates. Use real-time data to make informed decisions on how to redistribute agents and thus reduce response times. View historical data (of up to a year or more) to see performance trends and improve processes based on these.
- **Enhance productivity while keeping close control on costs.** ACD/CMS costs pay for themselves in a short time through the system's reliability in successfully routing all calls, the ease of use for call agents, and improved call agent productivity. Use historical data to establish performance benchmarks and to plan more effective customer service campaigns.
- **Improve customer satisfaction.** Customers will notice the difference in efficiency, effectiveness, and quality of interactions as you use data and quality metrics derived from ACD/CMS to improve staffing performance.
- **Recruit and retain top call agents.** Agents benefit by working in an environment where work is more equitably distributed and performance is based on measurable performance goals.

ACD/CMS is a scalable system for call centers at agencies that need to ensure caller satisfaction in the face of high call volume. The ACD server routes incoming calls to available call agents. CMS is an optional feature that tracks available agents. Call agents use CMS to enter their availability and other information as they work. This data is then available in real-time and stored in 30 to 60 minute increments for historical reports (see Figure 3).

Figure 3: ACD Call Flow Overview



For ease of use for call agents, you can add optional IP Agent software which controls the agent's desk phone from his or her PC. This centralizes all of the agent's activity on the PC.

You can purchase ACD with or without CMS, but to use CMS you need ACD. You can also add Voice Call Recording for recording calls and agent desktop contents.

ACD/CMS requires the use of VoIP or digital voice services. It is currently available on Avaya voice services.

DC-Net will customize aspects of the system to suit your agency's needs. For example, you may want to refine report data to better see performance at your call center or customize how calls are routed through the ACD/CMS. For more information, contact DC-Net Professional Services.

Basic Call Management System

When you have ACD/CMS, you can add Basic Call Management System (BCMS), which helps you monitor the operations of your enhanced call processing application. BCMS collects data regarding calls on the switch. DC-Net then organizes this data into reports, which are then sent to you at an interval you determine. BCMS reports let you manage hourly and daily operations, including:

- Monitoring the calling volume for each split.
- Monitoring Virtual Directory Numbers (VDNs), extension numbers used by the ACD system.
- Monitoring the work load of each agent.
- Comparing agents' performances.

Note: Contact DC-Net Customer Care for availability.

Voice Call Recording

Ideal for call centers where calls must be monitored, such as 911 and other emergency call centers, Voice Call Recording gives you the capability to record and review telephone conversations and agent desktop application screens during a call.

Using NICE Systems voice and screen logging technology, data from the call streams is filtered based on the calls on phones you want to monitor. The system is connected to the PBX server via the Avaya Application Enablement Services (AES) server (see Figure 3). Calls are searchable by telephone number, user name, and timestamp. The system can also measure how many calls an agent has received.

An additional feature available with Voice Call Recording provides corresponding screenshots of applications open on an agent's PC during the call. This is useful, for example, if you need to compare the contents of a conversation with an agent's record of that conversation. Recorded text on screens is searchable.

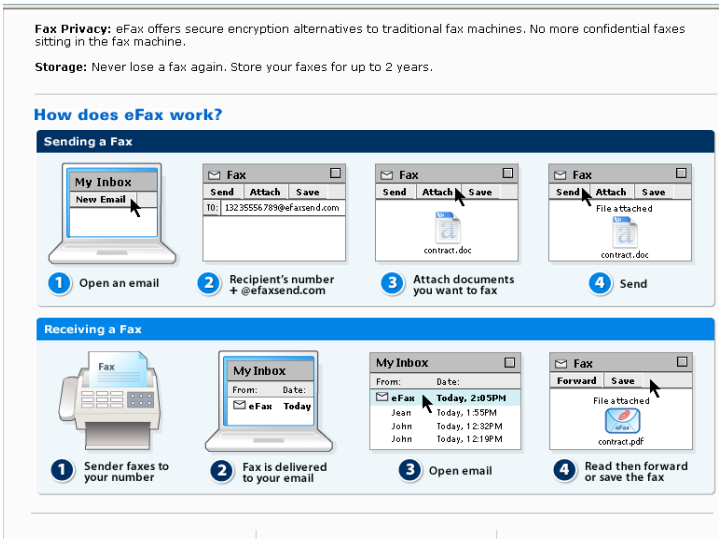
Voice Call Recording requires the use of VoIP or digital voice services. It is currently available on Avaya voice services.

You can use this product with Automated Call Distribution and Call Management System.

E-Fax

E-Fax lets you reduce the time and money you spend on faxing documents from traditional fax machines. E-Fax offers you the convenience of sending, receiving, and managing faxes directly from your desktop. It saves you time spent waiting for the fax machine, shoving papers into the fax, and checking to see if your fax has arrived. It can save your office up to thousands of dollars per year on printer cartridges, paper, and fax machine maintenance. Use E-Fax to create a more green and efficient work environment.

E-Fax features include:



- Send a fax as easily as printing a document. The E-Fax server shows up as a printer on your list. You can add a cover page and additional attachments. You can also set up your own profile.
- Receive E-fax emails and email attachments as PDF files.
- Get notified when E-faxes have been sent and received.
- Print option if you need a print copy.
- E-Fax supports Office 2007.
- To receive E-faxes all you need is an email account.
- To send E-faxes from your desktop, just install the E-Fax client software.
- Retrieve stored E-faxes from the E-fax server even if you have deleted your E-fax emails.
- Fax privacy – secure encryption alternatives to traditional faxes. No more confidential faxes sitting on the fax machine.

E-Fax administration features:

- Support for 24 simultaneous calls
- Uses Captaris RightFax software technology
- Store faxes for up to 2 years.

Web Conferencing

The DC-Net Web Conferencing managed service incorporates audio and video into a presentation meeting over the Internet using the Cisco WebEx network.

Uses

- Online meetings – Put an end to frustrating conference calls and back-and-forth emails. Accomplish more in less time.

- Presentations – Make sales presentations, demonstrate applications, and even review contracts online.
- Live interactive training – Train customers, partners, and employees anywhere in the world. Record for on-demand training, too.
- Large online events – Get your message out to more people faster; perfect for targeted webinars, online press briefings, any type of communications.
- IT helpdesk support – Support distributed users from any location. Remotely control desktops to see and fix issues in real time.
- Customer support – Troubleshoot and resolve remote customer problems via WebEx as if you were on site.

In a web conference, each participant sits at his or her own computer and is connected to other participants via the Internet.

Features

- Meet with up to 25 people at a time.
- **Share** documents, presentations, and applications.
- Meet from your PC or **Mac**—even your iPhone, Blackberry, or any other WiFi or 3G-enabled **mobile device!**
- Use **integrated voice conferencing**— join by phone or computer (VoIP).
- **Schedule** meetings yourself (Outlook integration).
- Access meetings on-net via DC-Net, off-net over the Internet.
- **Record meetings** for those who missed the session—or new audiences.
- Deliver **rich multimedia** (streaming video and up to six webcams).
- Count on **exceptional reliability and security**.
- Get 24/7 dedicated **support**.

Audio Conferencing

DC-Net offers 6 and 30 person conference bridges that meet your agency's needs. For each bridge, a dedicated telephone line is available 24 x 7 x 365. DC-Net administers the conference bridge and controls the password. Participants call in at the prescribed conference time, enter the password, and are bridged into the conference call. The first caller to the conference receives music on hold. As callers join, they are announced into the conference.

- **6 Port Meet Me Conference Bridge** – Provides access to six callers to the conference at one time. Passwords can be changed upon customer request.
- **Multi Port Meet Me Conference Bridge** – Provides access to 30 callers to the conference at one time, using standalone conference bridging software. Passwords change weekly or monthly as per customer agreement.

Unified Messaging

Unified Messaging is a vital tool for getting all your messages all the time. It lets you access and manage all voicemail to your phone and email *from both your phone and email*. Play voice messages from your Outlook inbox. While listening, enter notes which are stored with the message. Similarly, you can access email, calendar, and contacts from your phone. This service features 30 days of storage for messages.

Two services are available:

- **Unified Messaging Bundle** – For use with cell phone and landline phone.
- **Unified Messaging Landline** – For use with landline phone only.

With Outlook and Outlook Web Access Voicemail Integration you can:

- See all your voicemails in your mailbox.
- Play a voicemail from your computer.
- Play voicemail on a telephone (office, mobile, and even home phone).
- Forward voicemails to an individual or distribution list.
- Add and edit notes for any voicemail.
- See missed calls as emails.

With Outlook Voice Access, dial just one number to access:

- Voicemails – Play, delete, flag and forward voicemail messages.
- Email – Listen to email over the telephone, compose (dictate), forward, reply, delete, and flag for follow-up.
- Calendar – Listen to your schedule, cancel meetings, and send brief text meeting announcements such as “I am running late.”
- Contacts – Get contact information for your personal contacts and your entire DC Government Directory.
- Meeting requests – Schedule new meetings and invite internal agency and external contacts.

- Out-of-office message – Set an out-of-office message.

Features

DC-Net offers standard features available at no cost with voice services, free Ala Carte features available on request, and Ala Carte features available at a cost.

Standard Features

Table 2 lists standard features on all voice services.

Table 2: Standard Voice Features

Feature	Description
Call Appearances – Multiple	Make or receive multiple calls simultaneously on the same phone number.
Call Forwarding	Temporarily forwards calls to any phone number. Available for On-Net calls only.
Call Transfer	Transfer a call to another number.
Caller ID – Number Only	Displays the telephone number only of an incoming call on a Caller ID device.
Conference Call	Form a conference with two or more parties.
Disconnect	Drop button on telephone.
Local Long Distance	Calls made to areas outside your local calling area, but still within your Local Access Transport Area (LATA).
Message Waiting Indicator	Flashing light on a phone indicates that a message has been left from an incoming caller.
Off Premise Extension	A telephone in a different location from the main phone system, connected by a dedicated phone line, has all the capabilities of phones local to the main phone system.
Premium Message Board	Non-regulated voice messaging service lets you create an interactive voice messaging application that provides multiple pieces of information to callers based on key presses from a touch-tone phone. Callers use the touch-tone keys to navigate through a series of menu choices that let them select information they want to hear.
Send All Calls	Temporarily send all your calls to your voicemail system. Voicemail is required.
Speed Dialing	Store selected telephone numbers for quick and easy dialing.
Whisper Page	Make an announcement to a person at another extension currently on another call (permissions required). The feature forms a one-way speaking path to the destination you call. The person at the destination extension can hear you but not speak to you. Only the person at the destination extension hears the

	announcement. The other person on the call cannot hear your announcement. Note: If the person whom you have called is not using the telephone at the time you activate Whisper Page, the call is converted to a normal call.

Free Ala Carte Features

Table 3 lists additional Ala Carte features you can order at no cost.

Table 3: Free Ala Carte Features

Feature	Description
Call Park	Put a call on hold at your telephone for retrieval at any other telephone.
Call Pickup	Answer a call at your telephone for another extension in your pickup group.
Directory	Enter a user's name at the dial pad to search for that user's extension. Available on Avaya digital phones.
Exclusion	Block others from listening on bridged appearances of your line.
Long Distance	Calls made outside your LATA. Fees are handled between your agency and its long distance carrier. Note: Long distance calls require a 1+ area code + number.
Voicemail Reset	Reset voicemail. Orders are processed within 24 to 48 hours.

Ala Carte Features

Table 4 lists Ala Carte features available at a cost.

Table 4: Ala Carte Features

Feature	Description
BHC Change Charge (Agency Change)	Billing changes.
Automated Attendant	Manage incoming calls during and after business hours.
Call Block	Reject calls from a list of numbers you specify. The caller may get a message indicating that you are not accepting calls at the present time. Call Block does not work for numbers outside your calling area or for calls connected through an operation.
Call Waiting	Answer an incoming call while you are on the phone with another caller. You can turn Call Waiting off temporarily at any time.
Caller ID	Display the phone number of an incoming call.
Call ID – Line Blocking	Prevent your name and number from displaying on Caller ID display units for each outgoing call. The display unit will show "Private" or "Anonymous."
Enhanced Call Processor (Call Tree)	Set up paths for incoming phone calls. There is also a separate fee for installation.

Fixed Call Forwarding: Busy	Routes all incoming calls to another number specified or fixed when the line is busy.
Fixed Call Forwarding: Busy – Don't Answer	Routes all incoming calls to another number when the line is busy or not answered after a pre-determined number of rings.
Intercom	Calls internal lines using two digit dialing. Setup fee applies.
Message Units	Units of measure for charging telephone calls, based on the length of the call, the distance called, and/or the time of day.
PR300-24 Power Racks	Power racks for NT1 cards used to power ISDN 8510 phones.
Restore Per Line	Disconnected line restoration.
Software number/access	Appearance of software number on telephone, for example, for a receptionist who needs main number access from his or her phone.
Telephone Number Change	Request a telephone number change.
Virtual Call Appearance (EC500)	Calls to your Avaya office phone are extended to your cell phone. See EC500.
Unified Messaging	Access and manage all your voicemail and email from a single location. Unified Messaging.
Voicemail Features	See Voicemail.

EC500

The EC500 Extension to Cellular feature for Avaya Digital and VoIP phones gives you the freedom to work anywhere, anytime, using any type of cellular or wireless phone. With EC500, calls to your office number are extended to your cell phone, letting you receive work-related calls wherever you are and whenever you need to. EC500 even provides office caller ID, so you know who is calling before you answer.

With EC500, incoming calls to your office number reach you on the road, at another location, or even walking around the workplace. This "one number reachability" means that you can respond immediately to urgent business matters. Also, when you pick up the call on your cell phone, you can switch over to your office phone while the call is live. When you can't respond, your voicemail picks up your messages.

EC500 works with any type of wireless/cellular service. You control your availability by enabling or disabling EC500 as needed. Whether EC500 is enabled or not, your cell phone still operates as it always has. You still receive personal calls on your cell phone, because personal calls come in through your standard cellular number and service provider.

Voicemail

DC-Net provides voicemail options for all voice services.

- Avaya Digital and VoIP services – DC-Net offers Avaya Modular Messaging, a powerful unified messaging platform that offers exceptional scalability and a superior feature package of call answering, voice messaging, and speech capabilities. TTY/TDD support for disabled callers and hearing-impaired employees and callers is included.
- Cisco VoIP service – DC-Net offers Cisco Unity, a reliable, secure, scalable, and full-featured voice and unified messaging platform.

Note: Cisco and Avaya voicemail systems do not interoperate by default.

Voicemail options include:

- Voicemail 30 Minute Storage Single Password
- Voicemail Premium 60 Minute Storage
- Voicemail Premium 90 Minute Storage
- Voicemail Announcement Only

You can purchase voicemail on the first line and additional lines.

Phone Sets

DC-Net offers Avaya and Cisco phone sets.

Avaya VoIP Phones and Peripherals

DC-Net offers the Avaya 9620, 9640, 9640G, and 9650 IP VoIP phones along with a 9600 series compatible expansion module.

9600 series phones offer the following benefits:

- Productivity of Users - The productivity of end users is greatly enhanced through prompting for common telephony tasks, one-touch access to key features, and superior high fidelity audio.
- Richer Communication - The superior audio capabilities make conference calls and meetings more effective by requiring less reiteration. This has been found to reduce employee stress and fatigue.

- Investment Protection - Built on open standards with a modular platform that supports a wide range of modules and adapters to further enhance user productivity.

Avaya 9620 IP

A member of the Avaya one-X™ Deskphone Edition family, the 9620 IP Telephone is specifically designed for the everyday telephone user who relies on multiple communications tools such as email and IM, yet still requires a high quality and intuitive telephone for voice communications. The 9620 features an intuitive interface with a bright backlit display and several LED lights and buttons to explicitly convey status to the user, so completing call transfers and setting up ad hoc conference calls is simple and can be executed with confidence. The 9620 also features high fidelity audio, flexible support for add-ons in the future, all within a very stylish and professional design.

Features

- 3.45 inch (9 cm) diagonal monochrome backlit display enhanced with high resolution (1/4 VGA) gray scale display.
- Support for up to 12 call appearances/administered feature keys, with three concurrent line appearances visible at any time.
- Several LED lights and buttons. LED lights on the side of the display provide explicit status of different line appearances, while LEDs built into several buttons on the phone such as Mute, Message, and Headset provide an intuitive and simple experience for the everyday end user.
- Helpful and intuitive user interface.
- Uses the g.722 codec open standard for wideband audio that—combined with the phone body cavity designed specifically for wideband audio—provide uncompromised sound quality.
- Embedded full duplex speakerphone.
- Support for SIP telephony features along with additional SIP enhancements—including display of telephone “presence” of other users from the phone contact list, integration with MS Outlook calendar appointments, changeable display skins.

- Includes an embedded WML browser and is ideal for supporting phone based applications.

Avaya 9640 and 9640G IP

A member of the Avaya one-X™ Deskphone Edition family, the 9640 IP Telephone is specifically designed for the heavy telephone user, including relationship managers, and attorneys. The 9640 provides superior high fidelity audio, built-in “one touch” access to key Avaya Communication Manager mobility features such as Extension to Cellular, protocol independence (H.323 and SIP) and a stylish and professional design.

The 9640G IP Telephone includes features available on the 9640 IP model plus Gigabit Ethernet capabilities.

Features

- Supports 10/100/1000 Mbps with a secondary GigE port for workstation or PC (9640G only).
- 3.8 inch (9.65 cm) diagonal high resolution color backlit display.
- Supports up to 24 call appearances/administered feature keys with six concurrent line appearances visible at any time.
- Several LED buttons. Six LED line appearance buttons on the side of the display provide explicit status of different line appearances and administered features, while LEDs built into several buttons on the phone such as Mute, Message, and Headset provide an intuitive and simple experience for the everyday end user.
- Helpful and intuitive user interface.
- Completing call transfers and setting up ad hoc conference calls is simple and can be executed with confidence. The 9640 has a dedicated Call Forward/Mobility button, which provides direct access to Communication Manager Mobility features. Some of these features, such as Extension to Cellular and Extend Current Call, are critical to the essential user.
- Supports 24-button expansion module, which provides additional call appearances, bridged appearances, and administered feature keys including speed dials.

- Superior Audio Quality—High-fidelity acoustics, including wideband audio support in the speaker, handset, and headset, deliver industry-leading audio that minimizes ambient noise.
- Four-way navigation button cluster provides a familiar, cell phone-like interface for navigation and feature selections.
- The 9640 requires electricity from either an 802.af Power over Ethernet switch or a local Avaya power supply.

Avaya 9650 IP

A member of the Avaya one-X™ Deskphone Edition family, the 9650 IP Telephone is specifically designed for building receptionists, executive assistants, contact center agents, and knowledge workers who manage calls for themselves and for groups of people and who need quick access to features and call appearances. The 9650 features built-in button module functionality with one-touch access to bridged appearances, speed dials and feature keys. When used with Avaya Communication Manager 4.0, the 9650 supports up to three SBM 24-button expansion modules.

Features

- Uses the g.722 codec open standard for wideband audio, which provides uncompromised sound quality.
- Delivers advanced communications capabilities, high definition audio, an integrated WML application interface, and comprehensive one-touch access.
- Supports higher quality wideband audio in both the handset as well as the speakerphone, which provides crystal clear audio with the elimination of background noise.
- Backlit display and intuitive interface simplifies access to Avaya Communication Manager features.
- Some features simultaneously manage multiple calls while selectively muting and dropping conference call participants.
- Supports built-in button module functionality (eight physical buttons with shift capability for a total of 16 feature keys) to provide simple one-touch access to bridged appearances, speed dials and feature keys.

- Dual position flip stand.
- Through integrated web browser and application interface, it supports productivity enhancing phone applications such as LDAP corporate directories and integration with Microsoft Outlook calendars.

9600 Series Expansion Module

Provides 24 additional lines for incoming calls, outgoing calls, and calling features

Requirements and Compatibility

- Compatible with Avaya 9630, 9630G, 9640, 9640G, 9650, and 9650C IP telephones
- IP Office R6.0 or higher - Can add up to 3 SBM24 modules per phone; up to 42 SBM24s per system

Avaya Digital Phones – 2420

The Avaya 2420 Digital Telephone features a large display screen with a 7-line x 29-character Liquid Crystal Display (LCD). It is fully adjustable for optimum viewing from many angles. The large-scale display offers an effective user interface that can improve workforce productivity and serviceability.

Key features include:

- No Paper Button Labels – All buttons on the display are labeled and customizable.
- Easy Button Access – 24 system call appearance/feature buttons.
- Call Log – Provides automated call tracking with a 100-entry call log.

- Speed Dial Directory – In addition to the system directory, the phone provides access to a speed-dial directory with the capacity to store up to 104 speed-dial numbers for quick access to the numbers most used.

Avaya Phone Comparison Matrix

Feature	9650 IP	9640 and 9640G IP	9620 IP	2420 IP
				
Technology	IP	IP	IP	Digital
User	Navigator (reception, call agents)	Heavy	Average	Average
Call Appearances	24	24	12	24
Call Log	✓	✓	✓	✓
Display (cm w x h) resolution	7.9 x 5.9 320 x 240 pixels	7.9 x 5.9 color 320 x 240 pixels	7.8 x 4.0 320 x 160 pixels	10.1 x 4.4 5 x 29 characters
Feature LEDs	11	10	3	
Speaker Phone	Wideband	Wideband	✓	✓
Softkey Buttons	12	4	4	4
High-Fidelity Audio	✓	✓	✓	
Integrated Speed Dial/ Contacts	250	250	250	
Expansion model support	✓	✓		✓
Ethernet Switch	✓	✓	✓	
Communications Protocol	H.323	H.323, SIP	H.323, SIP	TDM
Voice Protocols	G.711, G.729A/B, G.726, G.722	G.711, G.729A/B, G.726, G.722	G.711, G.729A/B, G.726, G.722	G.711
USB Port	✓	✓	✓	

Cisco Unified IP Phones

DC-Net offers a wide range of Cisco unified IP phones, including wireless and video phones for our Cisco VoIP solution. When you purchase a Cisco phone from DC-Net, this includes licensing that lets you:

- Access multiple applications and phone set features without paying any additional license fee.
- Upgrade phone sets without purchasing a new license.

7965G

Enhance the telephone user experience with high-fidelity wideband audio, new backlit color displays, and improved navigation options. The Cisco Unified IP Phone 7965G extends the functionality of the existing Cisco Unified IP Phone 7961G and 7961G-GE models with the following features:

- High-fidelity wideband audio for vibrant, lifelike conversations; Internet Low Bitrate Codec (iLBC) support for use in lossy networks.
- Large backlit color display for easy use of Cisco Unified Communications and third-party telephone applications.
- Improved navigation cluster for easier navigation and feature and function selection.
- Gigabit Ethernet connectivity.

7945G

Improve the telephone user experience with new high-fidelity wideband audio, backlit color displays, and navigation options. The Cisco Unified IP Phone 7945G extends the

functionality of the existing Cisco Unified IP Phone 7941G/7941G-GE models with the following features:

- High-fidelity wideband audio for vibrant, lifelike conversations; Internet Low Bitrate Codec (iLBC) support for use in lossy networks.
- Large backlit color display for easy use of Cisco Unified Communications and third-party telephone applications.
- Improved navigation cluster for easier navigation and feature and function selection.
- Gigabit Ethernet connectivity.

7911G

This phone is available for DCPS only.

The Cisco Unified IP Phone 7911G addresses the needs of cubicle, retail, and manufacturing floor workers. This enhanced basic IP phone offers such features as:

- IEEE 802.3af Power over Ethernet and Cisco inline power.
- Added memory to support enhanced features and applications.
- Complete Cisco Unified CallManager line side security.
- A similar user interface to other new Cisco Unified IP phones.

Cisco Wi-Fi Enabled Phone – 7925G

Enhance the user experience and personal freedom with support for Bluetooth. Increase business continuity by taking advantage of a new ruggedized industrial design. The Cisco Unified Wireless IP Phone 7925G for mobile professionals extends the functionality of the existing Cisco Unified Wireless IP Phone 7921G with the following new features:

- Support for Bluetooth v2.0 headset profiles gives you more freedom

- Hermetically sealed phone/display is IP54 rated, protects against dust, liquids, and moist wipes, and is ideal for deployment in more demanding environments
- Ruggedized industrial design is compliant with military 810F standard and includes a rubber casing to shield the phone from damage caused by drops and shocks
- A more compact form factor gives you an IP phone that is easier to hold

Other features include:

- IEEE 802.11a, b, and g standards that allow customers to use the phone in the 2.4 GHz or 5 GHz bands.
- A 2-inch color display (176 X 220 TFT) that is easier to read and enhances XML applications.
- Built-in speakerphone capabilities.
- Dedicated mute and volume keys, and separate Application button that can support Push-to-Talk via Extensible Markup Language (XML).
- Longer battery life (200 hours standby time or 15.5 hours talk time).
- High durability for all business environments.
- Exceptional voice quality with support for wideband audio.
- Diversity antenna for better RF coverage.
- Support for wide range of enterprise applications through XML.
- Wireless security features including LEAP, PEAP, EAP-FAST, EAP-TLS, WPA, WPA2, CCKM, WEP, TKIP/MIC, and AES.
- Voice security features including Certificates, Secure Real-Time Protocol (SRTP), and Transport Layer Security (TLS).
- Support for Wavelink Avalanche.
- Quality of service features including WMM, TSPEC, EDCA, and QBSS.

Cisco Conference Bridge – 7937G

The 7937G is Cisco's latest IP conference phone set that integrates with Cisco IP phones deployed on the DC-Net network. It is a replacement for the 7936G model.

Features include:

- Superior wideband acoustics with the support of the G.722 wideband codec
- Support for IEEE Power over Ethernet (PoE) or the Cisco Power Cube 3
- Expanded room coverage up to 30 feet by 40 feet with the optional external microphone kit
- Support for a third-party lapel microphone kit[1]
- New larger backlit liquid crystal display (LCD)
- Global localization

This phone set integrates with DC-Net's Cisco Unified Communications Manager/Cisco CallManager platform.

Cisco Video Phone – 7985G

An important component of the Cisco Unified Communications system, the Cisco Unified IP Phone 7985G is a personal desktop videophone that makes instant, face-to-face communications possible for executives and managers alike. This model integrates all the necessary components to enable a video call--camera, LCD screen, speaker, keypad, and handset--into a single, easy-to-use unit. IP telephony and IP video telephony are delivered to every employee using a unified dial plan and common directory—over a single Cisco Unified Communications infrastructure—through Cisco Unified Call Manager.

The Cisco Unified IP Phone 7985G also offers:

- Numerous features including call forward, transfer, conference, and hold (now available with video).
- A variety of accessibility methods based on user preference.
- Direct access to IP phone directories, services, settings, and voicemail messages.
- Dedicated buttons that control video features: Self View, Picture in Picture, Video Mute, Display, and Brightness.

Note: Unified IP phones require data services for video.

Cisco Unified IP Phone Feature Comparison

	7911G	7945G	7965G	7925G	7985G	7937G
						
Description	DCPS-only	General	General	Wireless	Video	Conference Station
Integral Switch	10/100	10/100/1000	10/100/1000	N/A	10/100	10/100
Display	192x64 mono chrome	Digital, 16-bit graphical backlit TFT Color, 5"	Digital, 16-bit graphical backlit TFT Color, 5"	Digital, 16-bit graphical backlit TFT Color, 2"	8.4" color, for 2-way video	32 level grayscale, backlit (255 x 128 pixels)
Number of DNs supported	1	2	6	6	1	
Programmable (line) keys	0	2 - Lighted	6 - Lighted	N/A	1	
Programmable (soft) keys	4	4	4	2	5	4
Speakerphone	✓ (listen only)	✓	✓	✓	✓	✓
Headset Port		✓ (wideband support)	✓ (wideband support)	✓	✓	
Wideband Audio	Limited	✓	✓	✓		✓
iLBC support	✓	✓	✓	✓		
'5-way' navigation cluster		✓	✓	✓	✓	
Headset mobility		✓	✓			
XML App. Support	✓	✓	✓	✓	✓	✓
Extension Mobility	✓	✓	✓	✓		
Key Extension Module (KEM) support			✓			

Video Advantage Camera support		✓	✓			
Power budget	5W	12W	12W	5W	15.4W	
Power - other	Cisco inline, power cube, power injector	Power cube, power injector	Power cube, power injector	Standard or Extended battery	Power cube for full brightness	Power over Ethernet or Power Cube 3
Signaling Protocols	SCCP/SIP	SCCP/SIP	SCCP/ SIP	SCCP	SCCP	SCCP
UC Manager support	3.3(5)sr1 and later	4.1(3)sr5b and later	4.1(3)sr5b and later	4.1 and later	4.1 and later	4.3-12.4 (15) x2 and later
UC Manager Express support	4.0 and later	4.1 or later	4.1 and later	4.1 and later	4.1 and later	4.1 and later

Headsets

DC NET offers wireless headset and electronic hook switch packages for Cisco and Avaya users.

These combine the Plantronics Savi W0 100 convertible wireless headset and the Plantronics Savi EHS Avaya cord in one package. The headset system lets users connect to multiple communication applications and devices—desk phones, PC softphones, and PC audio—with a single headset. With a touch of a button, professionals can connect a softphone call on a PC with a desk phone call and then attend a Webinar. Features include a noise-canceling microphone, wideband PC audio, and integrated DECT 6.0 technologies. The headset offers lifelike fidelity with every call and application and lets users roam up to 350 feet from their desk without compromising on clarity.

The electronic hook switch (EHS) allows the user to control calls from the headset. It plugs into the phone and the headset base station plugs into it.

This product supports DC-Net Cisco IP 7900 series phones and Avaya 2420 and 9600 series phones.

Video

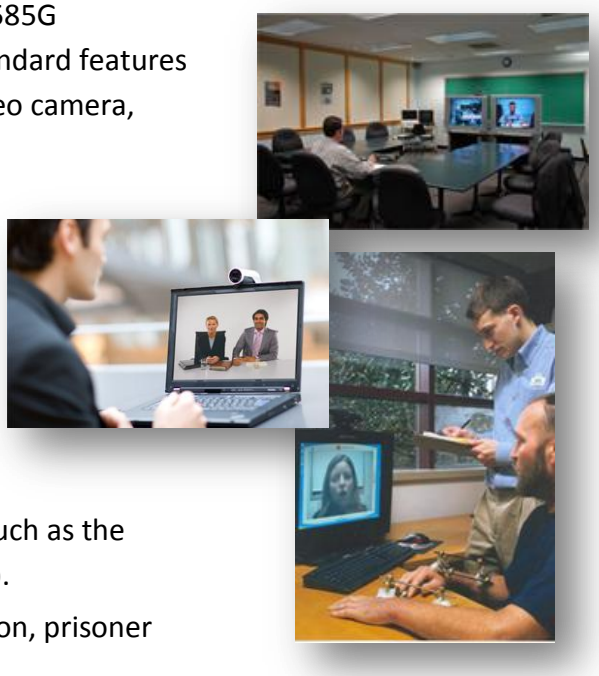
With a fiber optic infrastructure and support for the high bandwidth requirements of converged networking services, DC-Net can help you enhance your agency's ability to communicate to its customers, internally, and with other agencies in the government through new video streaming and video conferencing offerings.

Whether you need to communicate in real-time or via streamed video, the network's ability to deliver is the component in your users' experience. DC-Net provides guaranteed quality of service (QoS), enabling secure communication without interruption, interference, or degradation of service, even during peak usage.

For more information about video service options, contact Professional Services.

Video Conferencing

DC-Net provides point-to-point (two person) and multi-point (three or more participant) video conferencing options.



- For two person conferencing, the Cisco 7585G videophone is used. In addition to the standard features of an IP phone, this videophone has a video camera, screen, microphone, and speakers.
- Public and government interaction—E-concierge and public kiosks.
- Education—Distance learning and video presence at schools, universities, and other learning or training facilities.
- Public safety—Communication within the District and with external networks, such as the National Capital Region network (NCRnet).
- Justice system—Video courtroom, visitation, prisoner testimony, and arraignment.
- Health—Training and telemedicine applications.
- Intra- and inter-agency meetings and team collaboration

Options

- **Desktop and Road Warrior** – Personal video conferencing product suites designed for single user experience. Select from leading HD desktop sets, video phones, soft clients, or specialized endpoints for public, secure, and other custom environments.
- **Conference Room Solutions** – From collaboration to large scale conference or training rooms. Options include HD and full immersive Telepresence.
- **Customized Solutions** – Custom designed solutions on an individual case basis (ICB) include: leasing options, professional services, and specialized integration.

Managed Services

DC-Net provides an array of optional services to manage your video conferencing experience:

- Support for spontaneous point-to-point or multipoint video conferencing without a reservation
- Interoperability – Support for different endpoint types
- Installation and maintenance support for customer-owned video conferencing system from approved vendors
- Per-use access to shared video conferencing facilities
- ISDN (H.320) support for off-network conferencing
- Leased and rental endpoints on hourly and monthly basis
- Consistent monitoring and maintenance of endpoints, infrastructure, and network
- Global scheduling of video conferencing resources and streamlined help desk process
- Additional centralized services – Language translation and interpretation, accessibility for people with disabilities

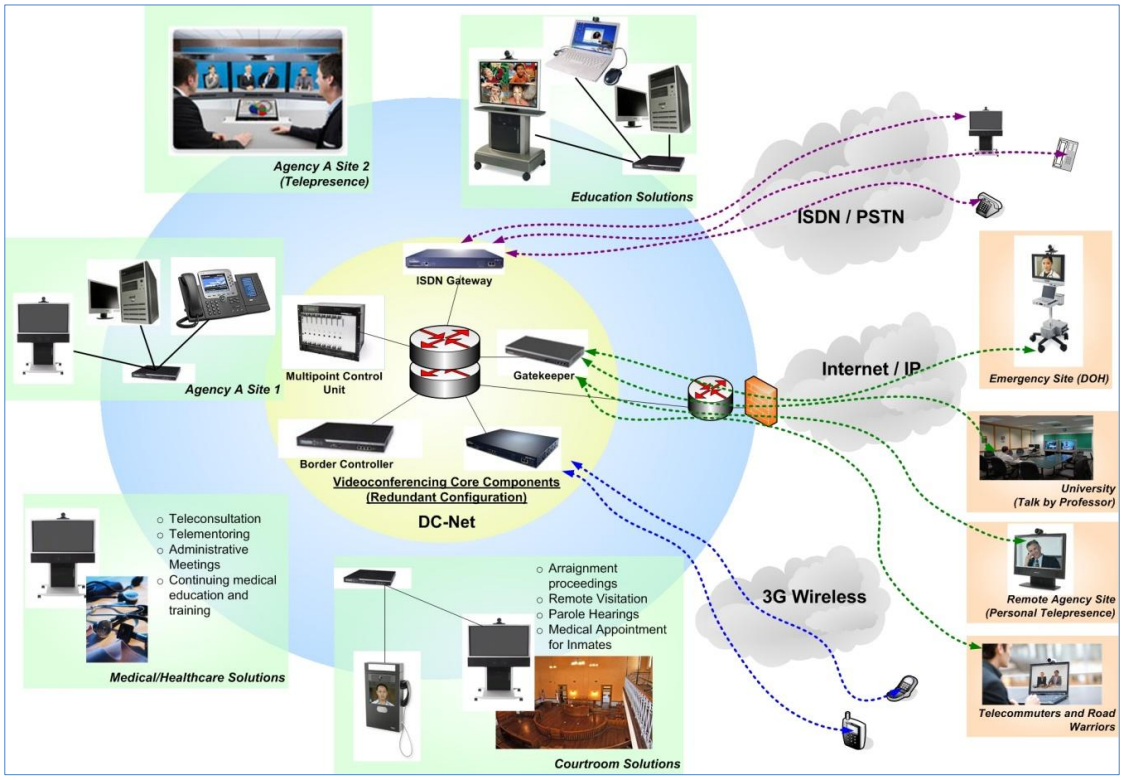
Architecture

- Standards-based – allows any-to-any interoperability from different endpoints
- Best of breed equipment in core
  - Leverages existing DC-Net backbone infrastructure, voice IP PBXs, and IP MPLS L3 VPN architecture
  - Scalable, easy to expand core components
  - Secured system, able to traverse firewalls

- Integrated scheduling
- Supports collaboration, H.239, and is SIP compliant
- Highly reliable network with guaranteed Quality of Experience and Quality of Service audio/video metrics
- Supports HD video and audio
- Customizable product offerings meet the specific needs of individual agencies

Figure 4 shows a range of video conferencing applications over the DC-Net backbone network and managed by the core components. Users outside the network can connect over the Internet and through ISDN/PSTN endpoints. 3G wireless connectivity is planned for future deployment.

Figure 4: DC-Net Video Conferencing Architecture



For more information about video conferencing products and services, contact Tige Johnson, DC-Net Business Unit Director at 202-715-3775.

Video Streaming and IPTV

Ideal for use on agency websites, blogs, Podcasts, and other venues, video streaming uses prerecorded media files. For viewers, the media is sent in a continuous stream and is played as it arrives through a media player.

Internet Protocol Television (IPTV) delivers television using Internet Protocol over the network infrastructure, instead of through traditional broadcast and cable formats.

Video streaming and IPTV uses can include:

- Security monitoring
- Public broadcast media available to schools, libraries, and universities
- Information and training videos available to users from an agency website
- Public hearings
- Customer service announcements and other communications

Wireless LAN Services

As indoor wireless access becomes increasingly necessary in the workplace, DC-Net helps you meet your agency's needs for wireless services. DC-Net offers the wireless extension of data circuits through both secure and public access. We also customize wireless access point (WAP) installation and management based on agency needs and site size and type.

By leveraging state-of-the-art Cisco technology and supporting standards-based unlicensed frequencies (802.11 a/b/g/n), DC-Net can install and manage WAPs at each newly deployed site, enabling ubiquitous, secure wireless access for government workers. In addition, DC-Net wireless "hotspots" at these sites enable public access to District government services and the Internet over DC-FreeWiFi.

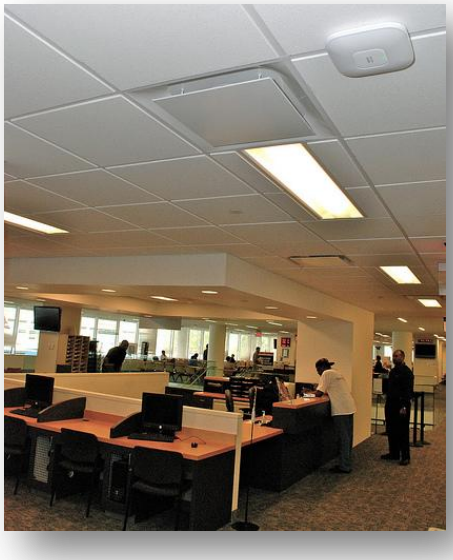
For more information about DC-Net wireless services and applications, contact DC-Net Customer Care (202) 715-3801.

Benefits

Meeting the growing demand for mobility and increased collaboration, DC-Net helps workers operate more effectively throughout the office environment, whether this is using a laptop in a wireless conference room or working remotely as a "visitor" at another agency.

This service is particularly useful at locations with a predominant number of mobile workers or other users, such as public safety sites, health care facilities, warehouses, job training centers, and educational institutions and campuses.

DC-Net wireless infrastructure is an extension of the enterprise network, thus enabling centralized management and a range of wireless applications and benefits:



Indoor wireless access point deployment at the Southwest Waterfront

- Wireless LAN connectivity for laptop and other wireless device users
- Wireless VoIP for in-building wireless phones (Cisco 7925G and others) over the WLAN
- Secure separation of private/authenticated and public WiFi access
- Location tracking for personnel and assets
- Point of sale applications
- Complement to bar code scanners in warehouse
- OfficeAnywhere – Optimal for disaster recovery scenarios, pre-provisioned WAP extends internal network access over an existing Internet connection from anywhere.

Technology

Wireless Access Points (WAPs) provide a standards-based extension of the existing data circuit, supporting both authenticated (Secure) and public (DCFreeWiFi) SSIDs. These connections are completely separate. Workers use the secure connection to access the network; authentication is tied to existing user credentials. Visitors use DCFreeWiFi to access the Internet.

DC-Net uses Cisco Aironet 1140 and 1250 internal WAPs which provide a range of approximately one WAP per 3000 square feet in most structures. These devices support 802.11 a/b/g/n Wi-Fi standards. The Aironet 1524 is used for outdoor wireless hotspots. Bandwidth is negotiated at whatever the user device supports, with theoretical speeds up to 11 Mbps for 802.11 b, 54 Mbps for 802.11 a/g, and 350 Mbps for 802.11 n.

Installation and Management

When you order wireless access point service from DC-Net all aspects of implementation and management are covered. DC-Net's experienced Radio Frequency Engineering team designs, configures, installs, and manages the network wireless infrastructure. Depending on a site's size and customization, DC-Net either manages access points remotely from on-site equipment or through its enterprise core infrastructure.

The DC-Net management infrastructure uses Cisco unified wireless controllers. These controllers support intrusion detection and rogue WAP detection as well as custom usage reporting.

Pricing includes a non-recurring cost for each WAP, along with a modest monthly recurring cost for management of the WAP and its supporting infrastructure.

Future Applications

DC-Net is positioned to support and deliver wireless applications as they become available and are requested by agencies. These include the deployment of dual-band phones that switch seamlessly between cellular and DC-Net network depending on signal strength as well as support for “Smart Building” applications. If your agency has special wireless application requirements or other customized needs, we can help. Please contact DC-Net Customer Care today.

Professional Services

DC-Net offers voice service related Professional Services by our engineering and technical staff. Professional Services includes:

1. **Physical cable** – Any cable work that requires extensive time and resources beyond what the product code for cable installation covers. Work includes the installation of single 4 pair Cat. 5E or Cat. 6 cable from customer demarcation point (room or device) and related work. Wiring conforms to BICSI standards.
2. **Programming** – Includes moves, adds, and changes completed in software on Avaya and Cisco PBXs and E-Fax system, the implementation of completed design work (for example, implementing an ACD/CMS system or call tree), and training.
3. **Design support** – Includes the software administration of PBXs; upgrading and updating circuit packs; voicemail maintenance; designing ACD/CMS and other systems.
4. **Individual case basis** – Includes building cutovers and upgrades from sites outside of DC-Net to on-net sites; upgrade from ISDN to Digital services.

In addition, DC-Net Professional Services conducts site surveys when you are considering new voice and data services or services beyond the standard moves, adds, and changes handled by DC-Net's Customer Service Representatives. A site survey precedes all Professional Services orders. The site survey allows DC-Net to assess the site environment, including existing voice hardware and electronic infrastructure, wiring, and physical and logical design to present you with options that best suit your agency's goals and budget for the site.

A site survey is required for any considered change that involves:

- 10 or more telephones at one time.
- Moves that require new wiring, including moves to a different floor within the same building.
- Moves to a new building.
- A voice service change (for example from ISDN to Digital) or equipment upgrade.

For more information about Professional Services, contact DC-Net at 202-715-3801.

Ordering Products and Services

The process you follow for ordering DC-Net products and services depends on your government agency.

For District Government agencies, the Agency Telecommunications Coordinator (ATC) is the point of contact for users in agencies who want to request DC-Net products and services. **All requests to DC-Net must go through the ATC.** Depending on the agency, the Central Pay or Non-Central Pay process is used.

- ATCs at Central Pay agencies use the Request for Telecommunications Service (RTS) system to request a telecommunications service. Complete this request for all additions, changes, or modifications to any telecommunications services or products. **Your request must have the appropriate signatures.**
- For federal government agencies, some DC Government agencies, and the University of the District of Columbia (UDC), ATCs use the Non-Central pay process. ATCs submit a Data Services Request (DSR) or Voice Services Request (VSR) directly to DC-Net.

For pricing, additional product information, or billing questions contact DC-Net (8:30 AM to 5:30 PM, Monday through Friday) at 202-715-3801.

Visit DC-Net online at: www.dcnet.in.dc.gov.

Central Pay

Requests for products and services through central pay agencies (most agencies in the District Government) are invoiced through the RTS system.

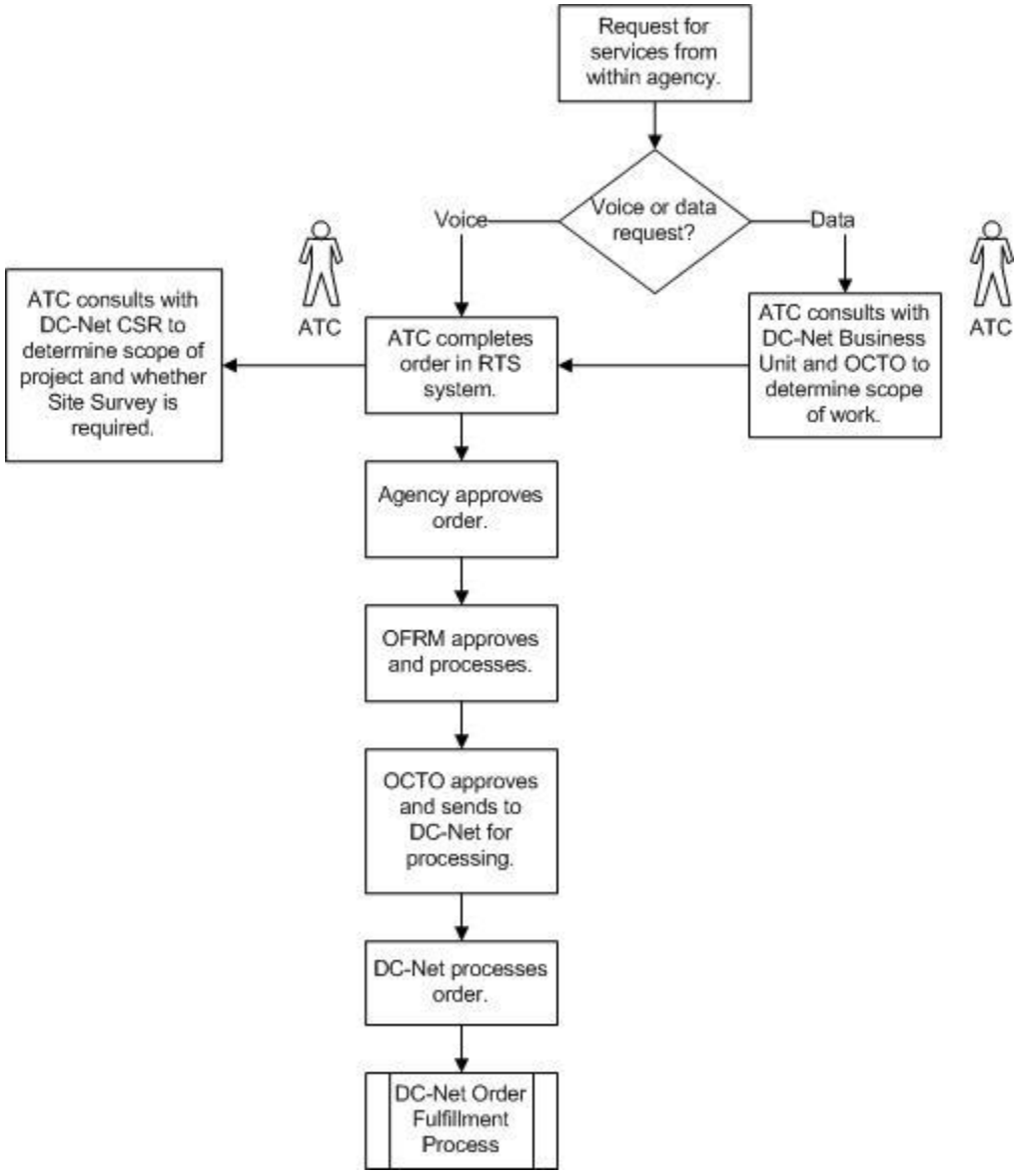
ATCs are responsible for submitting voice and data service requests through the RTS process. Orders are submitted through the RTS system and approved through the agency, the Office of Finance and Resource Management (OFRM), and OCTO before coming to DC-Net for processing. Note: RTS Orders with incorrect pricing, product codes, or addressing, or not enough information may be rejected by OCTO or DC-Net.

For voice service requests, ATCs consult a DC-Net Customer Service Representative (CSR) to determine whether the scope of work requires a site survey. Standard moves, adds, and changes do not require a site survey. If the work involves 10 or more phone

lines, new lines, a service or equipment upgrade, or other special circumstances, a site survey is required. For more information, see Professional Services.

Because data service requests involve cabling and data electronics work, DC-Net treats all data service requests as a significant project. ATCs work in consultation with the DC-Net Business Unit and OCTO for assistance in completing the project order.

Figure 5: Central Pay Process

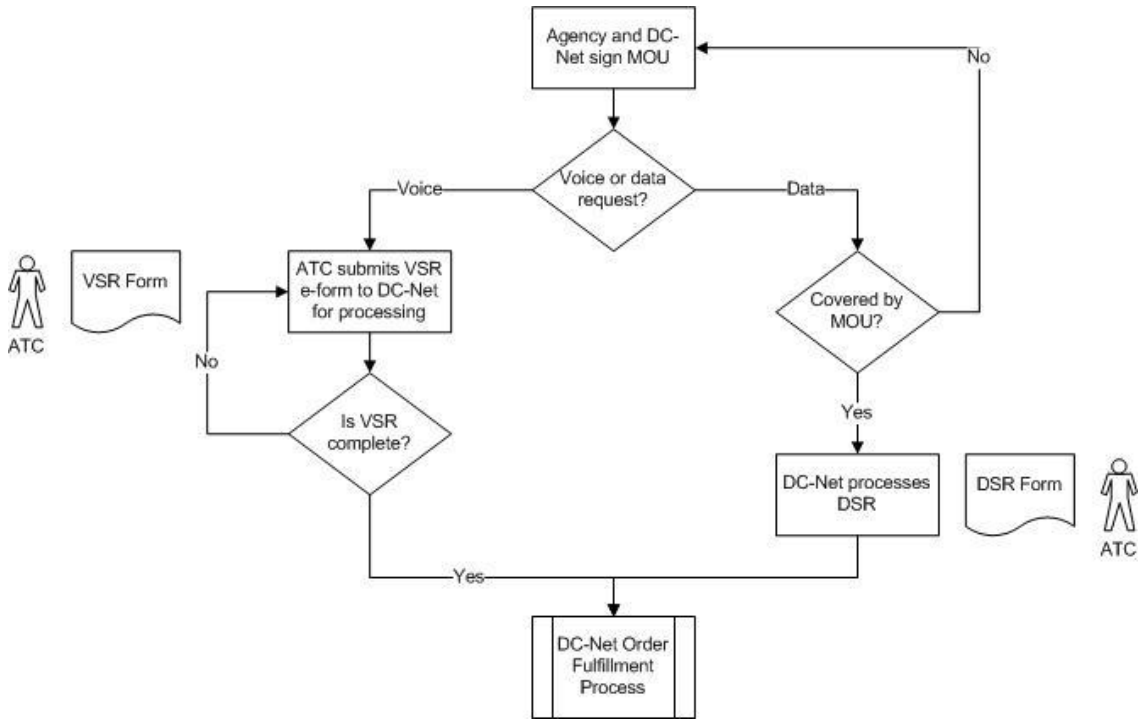


Non-Central Pay

Requests for products and services through non-central pay agencies (such as UDC, the Department of Child and Family Services, the Department of Mental Health, and other entities such as Federal Government agencies) are based on a Memoranda of Understanding (MOU) signed by the agency and DC-Net for the fiscal year.

- For voice service requests, the ATC submits an electronic VSR form directly to DC-Net.
- Data service requests outside of the scope of the MOU would necessitate a new or revised MOU.

Figure 6: Non-central Pay Process

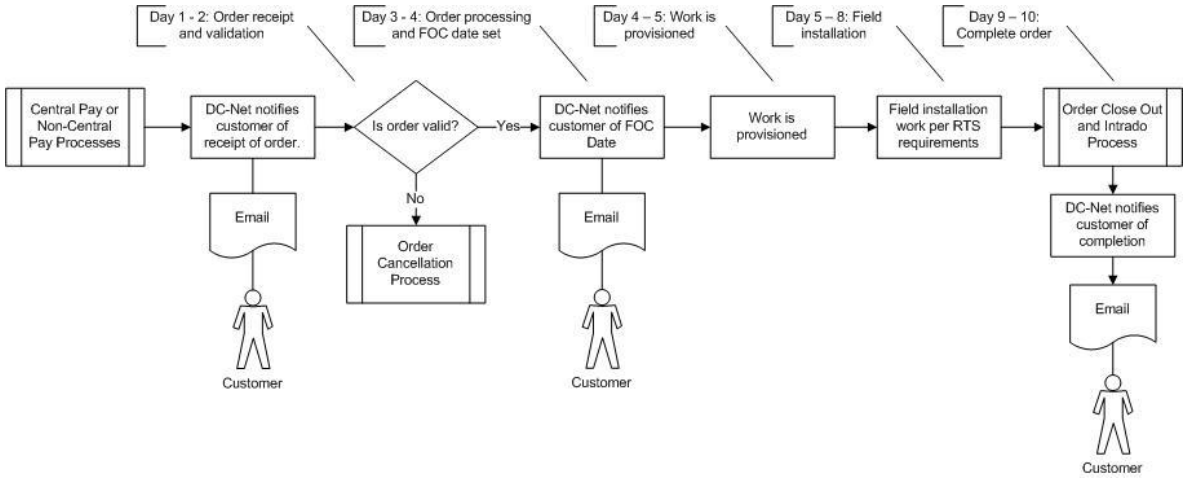


Order Fulfillment

The standard voice order for a move, add, or change takes 10 business days to process from the time DC-Net receives the order. Customers receive receipt notification of the order, the Firm Order Commitment (FOC) date, and a Completion Memo.

Data orders depend on the scope of the project and are determined during consultation with OCTO and DC-Net.

Figure 7: Order Fulfillment Process



Getting Help

The DC-Net staff consists of knowledgeable and industry trained Customer Service Representatives (CSRs) and Help Desk personnel to assist you with all your needs.

- **CSRs** help you with additional product information and service order requests for items such as feature changes, new connects, disconnects, voicemail, station relocation, PIC changes, address changes, and so on. CSRs are available 8:30 AM – 5:30 PM Monday through Friday at 202-715-3801.
- **Help Desk/Repair** personnel are available to assist 24 hours a day, 7 days a week at 202-715-3733. When you place a help desk request, a trouble ticket is generated and passed to the responsible team in DC-Net. You are then contacted regarding the status of your request and its final resolution. Non-emergency requests during off hours are handled during the next business day. Emergency requests during off hours are handled in coordination with the DC-NOC within two hours.

Tier 1 – 3 technical support and customer care response is standard for all voice services. Contact DC-Net for information regarding moves, adds, and changes.

Voice Support

For voice service support, contact the DC-Net Voice Help Desk at 202-715-3733. 24 hour coverage is available.

- Voice Tier 1 Assistance – Non-critical issues. Field technicians are available during work hours.
- Voice Tier 2 and 3 Assistance – After hours support. Inside voice and data engineers and select group of field engineers are available 24 x 7 x 365.

The Help Desk call center is located in DC-Net offices at 655 15th Street NW.

Data Support

Because the DC-NOC monitors the network 24 x 7 x 365, in most cases it receives first notification of data service interruptions. Critical interruptions are then resolved through DC-Net Tier 3 network engineering support.

Glossary

For detailed definitions of telecommunications and networking terms, see the OCTO glossary: http://fcms.ofrm.in.dc.gov/document/Standards/Telecom/I.PDF

Analog – A representation of data through continuously varying physical qualities, such as sound waveforms. Analog implies a continuous signal in contrast with digital.

Digital – A representation of data in a series of ones and zeros that can be read by computers.

ISDN BRI (Basic Rate Interface) is a standard Integrated Services Digital Network (ISDN) service used for small scale business Internet connections. ISDN is a legacy, circuit-switched system that integrates speech and data on the same lines. BRI is made up of one or two 64 Kbps B-channels and one 16 Kbps D-channel. An ISDN BRI provides two 64 Kbps digital channels to the user. These can simultaneously receive or transmit any voice, data, or video digital signal.

MPLS – Multiprotocol Label Switching. MPLS is a data packet forwarding technology with improved forwarding speed of routers by using labels to make data forwarding decisions. DC-Net uses MPLS to route VoIP calls across its network.

On-Net – A location that has DC-Net equipment.

PBX – Private Branch Exchange. A PBX is a private telephone network usually used within an enterprise. DC-Net uses PBXs to manage calls across the network among District government agencies.

VLAN – Virtual Local Area Network. A logical grouping that identifies sets of devices (computers, phones, video conferencing) which may or may not be at the same location but have access to a particular communications channel and a particular type of access.

VoIP – Voice over Internet Protocol. VoIP allows telephone calls to be made over computer networks like the Internet. It converts analog voice signals into digital data packets and supports real-time, two-way transmission of conversations using Internet Protocol (IP).

VPN – Virtual private networks (VPNs) use a public telecommunication infrastructure to provide remote offices or individual users with secure access to their organization's network. A VPN provides your organization with the same capabilities of a system of owned or leased dedicated lines, but at a much lower cost.

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